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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/548,405

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Masatoshi Kuroda

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EXAMINER

CHANG, VICTOR S

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

04/16/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/548,405	Applicant(s) KURODA ET AL.	
	Examiner VICTOR S. CHANG	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' amendments and remarks filed 2/27/2009 have been entered. Claims 1-3 and 6 are active.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. In response, new grounds of rejection have been set forth below. The grounds of rejection not maintained are withdrawn.

Rejections Based on Prior Art

4. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peters et al. [US 3321765] in view of Anderlind et al. [US 5267845].

Peters' invention relates to a Luneberg lens. It is essential that each shell of the lens has uniform dielectric constant throughout [col. 3, ll. 65-67]. The lens part is formed by molding pre-expanded thermoplastic foam particles [col. 3, ll. 57]. To obtain required dielectric constant, the thermoplastic is loaded (filled) with a material such as titanium dioxide (inorganic filler) [col. 4, ll. 40-43]. Granules of the thermoplastic are sieved into narrow size ranges [col. 4, ll. 66]. In

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order to obtain improved uniformity the particles may be sieved after expansion [col. 5, ll. 23-24]. If there is a discrepancy between the weighed quantity of granules and the quantity required to fill the mould chamber, some of the smaller or larger particles may be removed by sieving and the weight made up with larger or smaller particles [col. 5, ll. 52-56].

For claim 1, Peters is silent about: 1) the range of resin/filler volume ratio, 2) the foamed layer has a dielectric constant of 1.5 or more, 3) the expandable particles are formed by uniformly cutting an extrudate into beads, and 4) the pre-expanded beads are classified by gravity separation to a range of specified expansion characteristics. However, regarding 1) and 2), since Peters teaches that a Luneberg lens made of pre-expanded beads of thermoplastic resin with required amount of inorganic filler of a high dielectric constant, workable ratio of resin/filler ratio and dielectric constant of foamed layer are deemed to be an obvious routine optimization to one of ordinary skill in the art, motivated by the desire to obtain required properties for the same end uses as the claimed invention. Regarding 3), Anderlind's invention relates to a process of forming expandable polymer pellets (beads) having a greater uniformity in size, finish and texture for providing superior molded foam quality [abstract; col. 1, ll. 17-19; col. 2, ll. 5-8]. Expandable polymer strands having uniform diameter are extruded, then are fed to a pelletizer to uniformly cut into small expandable beads [col. 2, ll. 24-33]. It would have been obvious to one of ordinary skill in the art to modify Peters with the bead making process of Anderlind, motivated by the desire to obtain improved bead size uniformity for improved molded foam quality. Regarding 4), since Peters teaches that it is essential that the lens part has uniform dielectric constant throughout, and pre-expanded particles may be sieved to obtain improved uniformity of the molded lens part, a workable uniformity in dielectric constant is deemed to be

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obviously provided by practicing the invention of prior art for the same end uses as the claimed invention. It is noted that the “gravity separation” process has not been shown on the record to produce a patentably distinct article, therefore the formed articles are rendered *prima facie* obvious, and this limitation at the present time has not been given patentable weight.

For claims 2 and 3, the Official notice in the prior Office action “various titanate species, including barium titanate, strontium titanate, etc., are common and well known inorganic fillers having equivalent functionality of high dielectric constants to titanium dioxide” has been taken as admitted prior art. The selection of a known equivalent material based on its suitability for its intended use supported a *prima facie* obviousness determination. See MPEP § 2144.07.

For claim 6, regarding the limitation “the concentration of the inorganic filler is within a range of $\pm 0.5\%$ with reference to the designed concentration”, since Peters teaches that it is essential that the lens part has uniform dielectric constant throughout, a workable uniformity of inorganic filler in the pre-expanded beads is deemed to be obviously provided by practicing the invention of prior art, motivated by the desire to obtain an improved uniformity in dielectric constant throughout the lens part.

Response to Arguments

5. Applicants argue at Remarks pages 6-7:

“In Peters, the granules of the mixture are preliminary classified and selected by size. Accordingly, the classified granules vary in size, but have the same dielectric constant. The classified and selected granules are charged into a mold and expanded to obtain foamed dielectric layers. During this process, larger granules are used for an inner shell of the lens and smaller granules are used for an outer shell of the lens. This is because the degree of expansion required to form the inner shell is small since the inner shell is to have a high density (high dielectric constant), and the degree of expansion required to form the outer shell is large since the outer layer is to have a low density (low dielectric

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constant). Meanwhile, the post-expansion granules (particles) are still small enough to permit uniform loading of the molds (see, column 4, line 63 to column 5, line 1 of Peters).”

However, applicants have initially recognized that Peters preliminarily classified and selected by size, it is incommensurate with applicants’ argument that Peters classified granules vary in size, but have the same dielectric constant. Further, since the relative densities of the inner and outer layers are absent from the claim languages, applicants’ arguments are immaterial.

Applicants argue at pages 7-8:

“it is clear that the claimed lens is patentably distinguishable from the lens of Peters in the following points:

- (1) While the mixture of the resin and the filler before pre-expansion is uniform in size in the present application, the mixture according to Peters varies in size.
- (2) While the mixture is pre-expanded in the present application, the mixture in Peters is not pre-expanded.
- (3) While in the present application, after classification, the small beads are used to form the lens inner layer and the large beads are used to form the lens outer layer, the small particles are used in the lens outer layer and the large particles are used in lens inner layer according to Peters.”

However, regarding (1), the collective teachings of Peters and Anderlind, as set forth above, render applicants’ argument moot. Regarding (2), Peters expressly teaches that in order to obtain improved uniformity the particles may be sieved after expansion. Regarding (3), since the relative densities of the inner and outer layers are absent from the claim languages, applicants’ arguments are immaterial, as set forth above.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VICTOR S. CHANG whose telephone number is (571)272-1474. The examiner can normally be reached on 7:00 am - 5:00 pm, Tuesday - Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Victor S Chang/
Primary Examiner, Art Unit 1794